(No Model.) 2 Sheets—Sheet 1.

A. W. BROWNE.

ELECTRICAL SURGICAL ENGINE.

No. 600,135. Patented Mar. 8, 1898.

FIG. 1.

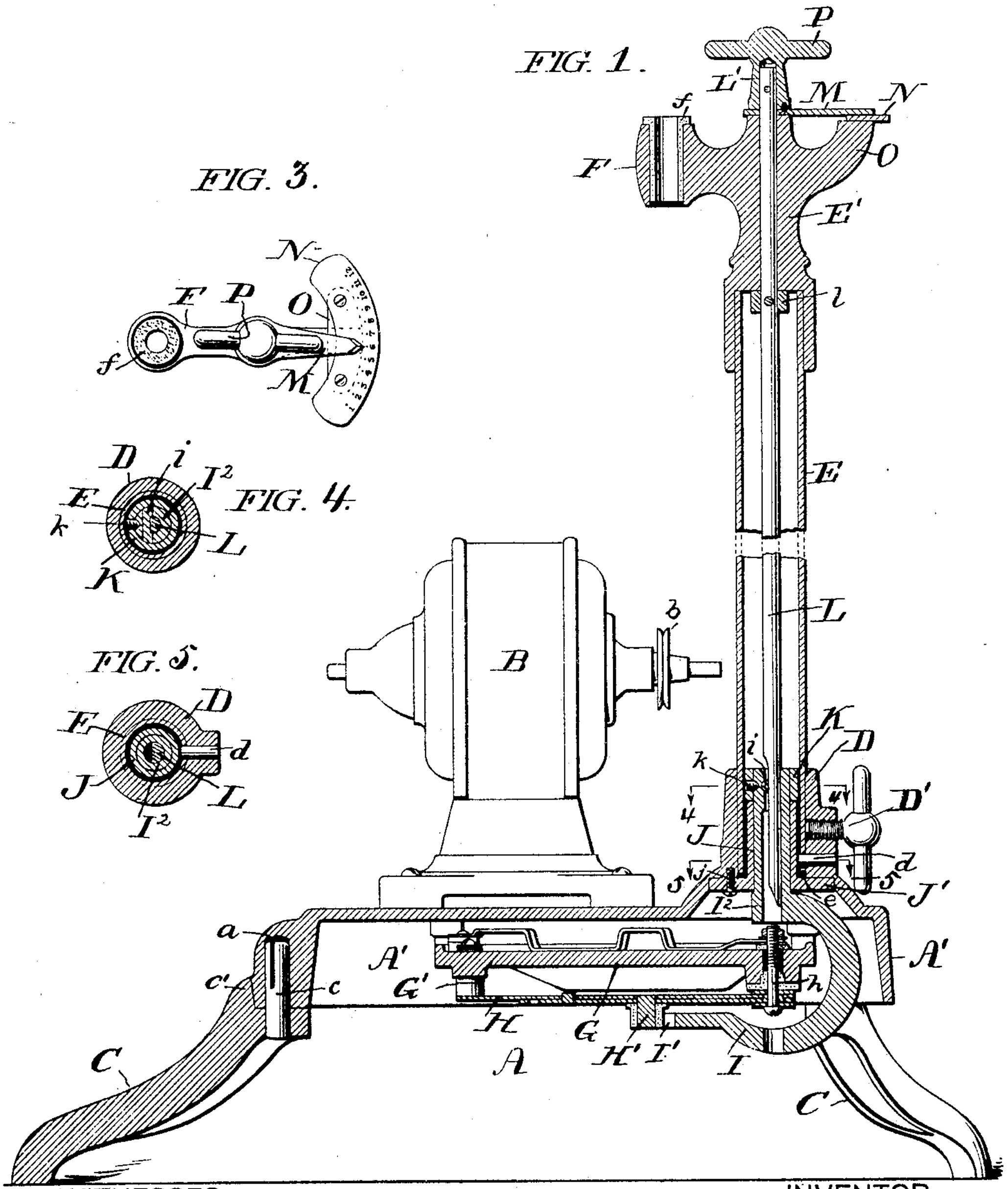

FIG. 3.

FIG. 4.

FIG. 5.

WITNESSES:

John C. Anles

M. W. Hollingsworth.

INVENTOR:

Arthur W. Browne,

by Edw. F. Simpson, Jr.

Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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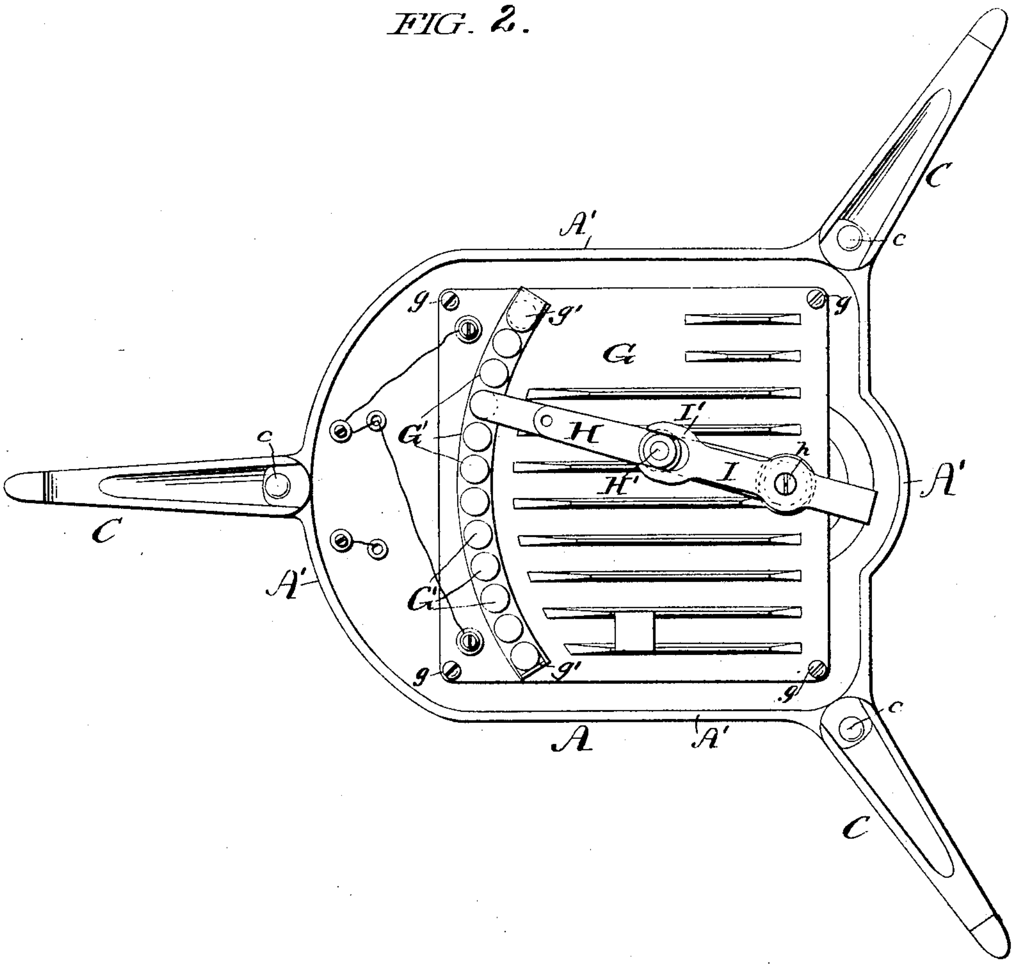
FIG. 2.



WITNESSES:
John C. Aviles
M. W. Hollingsworth.

INVENTOR:
Arthur W. Browne,
by Edw. F. Simpson, Jr. Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR W. BROWNE, OF PRINCE'S BAY, NEW YORK, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL SURGICAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 600,135, dated March 8, 1898.

Application filed October 19, 1897. Serial No. 655,725. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. BROWNE, a citizen of the United States, residing at Prince's Bay, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Surgical Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements, as hereinafter claimed, in surgical and dental engines of the class adapted to be operated by an electric motor; and my objects are to provide improved means for supporting the electric motor and for conveniently starting, stopping, and regulating the speed of the same.

In the accompanying drawings, which illustrate only so much of an engine as is necessary to show my improvements, Figure 1 is a view mainly in vertical central section of the engine-base, upright standard, and motor. Fig. 2 is an inverted plan view of the base. Fig. 3 is a top or plan view of the engine-standard, showing the controlling-handle and index. Fig. 4 is a horizontal cross-sectional view on the line 4 4 of Fig. 1. Fig. 5 is a similar view on the line 5 5 of Fig. 1.

A base A, having a flat top for supporting an electric motor B, is provided with three supporting-legs C, two at one end and one at the opposite end. The legs are each preferably detachably connected to the base by means of a split or spring dowel-pin *c*, adapted to enter and frictionally engage with a socket *a*, formed in a lug projecting from the base A. A lug *c'* on the leg is adapted to abut against a flattened portion of the lug on the base to prevent the leg from turning after it has been seated in place. By this means the legs are frictionally held in place on the base, so that they will not accidentally drop out should the base be lifted from the floor, while leaving them free to be readily detached whenever desired. The base is also provided at or near one end with an upwardly-projecting socket D for supporting a tubular upright standard E, the lower end of which is adapted to be fitted in the socket and detachably but firmly locked therein by a clamp-screw D'. A socketed bracket F projects from the upper end or head E' of the standard, so as to overhang the driving-pulley *b* of the motor B, and a notch *e* in the lower end of the standard engaging a lug *d* on the inside of the socket D insures the bracket F always occupying its proper position over the driving-pulley of the motor. The upper part of the engine, which is not shown herein and which may be of any suitable well-known construction—for instance, that shown in Letters Patent of the United States granted to me June 30, 1896, No. 562,800—is supported by the upright standard E by way of the socketed bracket F, the lower end of the standard of the upper part of the engine fitting in the socket. A bushing *f*, of insulating material, such as hard rubber, is fitted in the socketed bracket for the purpose of insulating the upper part of the engine from the motor.

The base A is formed with a downwardly-extending flange A' entirely surrounding it, and a rheostat G, secured to the under side of the base, is surrounded on all sides and hid from view by the base-flange. The rheostat, the details of which are not shown, preferably consists of an iron plate G, suitably connected to the base by screws *g* and provided with the usual resistance (not shown) and a row of fixed contacts G'. A spring contact-arm H is suitably pivoted at *h* to the rheostat-plate and bears upon the fixed contacts G', stops *g' g'* being provided at opposite ends of the row of contacts for limiting the movement of the spring contact-arm.

In order to control the movements of the contact-arm and thereby start and stop and regulate the speed of the motor, I have provided the following mechanism: A curved controlling arm or lever I, fulcrumed in the base-socket D, engages at its outer forked or notched end I' with a lug or projection H' on the spring contact-arm H, so that when the controlling-arm is moved on its fulcrum in either direction the spring contact-arm moves with it. The fulcrum or journal I^2 of the controlling-arm has bearing in a bushing J, fitted in the base-socket D and held therein by screws *j j*, passing through a flange J′ on the lower end of the bushing into the base. The controlling-lever journal is held in place in the bushing-bearing by means of a collar K on the upper end of the journal and secured thereto by a screw *k* and resting on the upper end of the bushing-bearing. The controlling-lever is adapted to be operated from the upper end of the tubular standard E by means of a controlling-rod L, located in the standard and passing entirely therethrough. This rod is pointed and flattened at its lower extremity, so as to enter the tubular or socketed journal of the controlling-lever and engage with a flattened lug *i* in the interior of the journal. The controlling-rod L has bearing at or near the upper end of the tubular standard in a head E′ and is held in position therein by means of a collar *l*, keyed on the rod and bearing against the lower end of the standard-head, and an enlarged handle portion L′ of the controlling-rod is detachably secured to the upper end of said rod and bears against the upper end of the standard-head. Secured to the handle portion of the controlling-rod is an index-finger or pointer M, which may be moved across the face of an index-plate N, curved concentrically with the rod and mounted upon a bracket *o*, projecting from the standard. The index-plate is suitably marked, in this instance the numerals from "1" to "12," inclusive, being used to correspond with the twelve fixed contacts of the rheostat. The handle portion of the controlling-rod is also provided with a handle P, by which the rod may be turned in opposite directions.

The operation of the apparatus is as follows: Suitable electrical connections having been made between the motor and the source of electrical supply and between the motor and the rheostat, the upper portion of a surgical or dental engine having been mounted upon the upright standard by way of the socket F, as hereinbefore described, and suitable driving connection having been made between the motor and the engine mounted on the standard, as by an endless driving-cord passing about the driving-pulley of the motor and the driven pulley of the engine, as will readily be understood without further description or illustration, the apparatus is ready to be operated. Turning of the controlling-rod in either direction by means of its operating-handle correspondingly moves the spring contact-lever of the rheostat, through the instrumentality of the controlling-arm I, over the fixed contacts of the rheostat, and the motor may be started and stopped and its speed regulated, the position of the contact-lever on the rheostat-contacts being indicated by the position of the index-finger on the dial-plate. When the index-finger rests upon the numeral "1" of the dial-plate, the contact-arm rests upon the corresponding contact of the rheostat and the motor is at rest, the current being broken. When the index-finger is turned to "2" on the dial-plate, the motor is started at lowest speed. The speed of the motor may be increased by moving the index-finger farther along the scale until the numeral "12" is reached, when all resistance is cut out and the motor permitted to run at full speed.

The apparatus may be readily taken apart and put together again by means of the detachable legs of the base and the detachable connection between the upright standard and the base and between the controlling-rod and the controlling arm or lever.

From the above description it will be seen that I have provided a base and support for electrical surgical and dental engines possessing the following characteristics, namely: It is of simple construction. It will conveniently support and carry the motor, rheostat, and engine. The means for starting, stopping, and controlling the speed of the motor are within convenient reach of the operator, and it can readily be taken apart for transportation and repairs and assembled without injury to the electrical driving and controlling connections.

I claim as my invention—

1. The combination, in an electrical surgical or dental engine, of the base, the motor and rheostat supported thereby, the contact-lever of the rheostat, the upright standard connected to the base, the controlling-handle at the top of the standard, and the connections between the controlling-handle and the contact-lever, whereby the movement of the controlling-handle may be imparted to the contact-lever, substantially as and for the purpose set forth.

2. The combination, in an electrical surgical or dental engine, of the flanged base, the motor on the top of the base, the rheostat supported on the under side of the base, the socket of said base, and the upright standard detachably fitted in said socket, substantially as and for the purpose set forth.

3. In a base for surgical and dental engines, the combination, of the socketed lugs on said base provided with the flattened portions, and the legs provided with the spring dowel-pins for detachably engaging the socketed lugs of the base, whereby they are held therein by frictional contact, the legs also being provided with the flattened projections for engaging the flattened portions of the lugs for preventing the turning of the legs, substantially as and for the purpose set forth.

4. The combination, in an electrical surgical or dental engine, of the base, the motor and rheostat supported thereby, the contact-lever

of the rheostat, the controlling-arm for the contact-lever journaled in the base, the tubular upright standard detachably mounted on the base, the controlling-handle at the top of the tubular upright standard, the controlling-rod within the tubular upright standard connected with the controlling-handle and adapted to detachably engage the controlling-arm of the contact-lever, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR W. BROWNE.

Witnesses:
SEYMOUR CASE,
M. A. COLE.